

CLAIMS

1. A chamber for transitioning a semiconductor substrate between modules operating at different pressures, the chamber comprising:
 - a base defining an outlet, the outlet permitting removal of an atmosphere within the chamber to create a vacuum;
 - a substrate support configured to support a semiconductor substrate within the chamber;
 - a top having an inlet, the inlet configured to allow for the introduction of a gas into the chamber to displace moisture in a region defined above the substrate support; and
 - sidewalls extending from the base to the top, the sidewalls including access ports for entry and exit of a semiconductor substrate.
2. The chamber of claim 1, further including:
 - a diffuser in communication with the inlet, the diffuser located over the region defined above the substrate support.
3. The chamber of claim 1, wherein the outlet of the chamber is in communication with a vacuum pump used to create a vacuum in the chamber.
4. The chamber of claim 1, wherein the gas introduced into the chamber is an inert gas.

5. The chamber of claim 2, wherein a distance between a bottom surface of the diffuser and a top surface of a semiconductor substrate resting on the substrate support is between about 3 millimeters and about 3 centimeters.

6. A system for processing a semiconductor substrate, the system comprising:
a first transfer module configured to operate at a first pressure;
a second transfer module configured to operate at a second pressure;
a pressure varying interface located between the first and the second transfer modules, the pressure varying interface capable of transitioning between the first and the second pressures, the pressure varying interface having a substrate support, a top vent port and a bottom vacuum port, the top vent port configured to introduce a fluid into the pressure varying interface, wherein the introduction of the fluid displaces moisture in a region defined above the substrate support.

7. The system of claim 6 wherein the pressure varying interface is a load lock.

8. The system of claim 7, wherein the top vent port is configured to deliver the fluid to a diffuser located above the substrate support.

9. The system of claim 6 wherein the fluid introduced into the pressure varying interface is an inert gas.

10. The system of claim 6, wherein the pressure varying interface includes a first access port to provide access to the first transfer module and a second access port to

provide access to the second transfer module, the first pressure being a positive pressure, the second pressure being a vacuum.

11. The system of claim 10, wherein the fluid is introduced to the pressure varying interface through the top vent port when the first access port is open.